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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,687

04/09/2007

Kaoru Nomichi

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3602

4743

7590

03/02/2010

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EXAMINER

LEE, GILBERT Y

ART UNIT

PAPER NUMBER

3676

MAIL DATE

DELIVERY MODE

03/02/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/575,687	<b>Applicant(s)</b> NOMICHI ET AL.	
	<b>Examiner</b> GILBERT Y. LEE	<b>Art Unit</b> 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/13/06 & 6/5/06 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

1. The amendment filed 11/20/09 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balsells (US Patent No. 4,890,937) in view of Balsells (US Patent No. 6,161,838).

Regarding claim 1, the Balsells '937 reference discloses a gas seal structure (Fig. 4) comprising:

a main seal means (124) that is made of rubber (Fig. 4) and is disposed between two seal surfaces (e.g. surfaces of 12b and 16);

a sub-seal means (130) that is disposed between the two seal surfaces (Fig. 4), the sub-seal means being located closer to a higher-pressure region (e.g. right region of Fig. 4) than the main seal means (Fig. 4) and being provided with a concave groove (e.g. groove of 130 holding spring); and

a pressure variation reducing means (e.g. groove between grooves holding elements 124 and 130) that is disposed between the main seal means and the sub-seal means (Fig. 4) and has a variation reducing space (e.g. space of groove) connected to

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a gap (e.g. 142 or gap between groove holding 124 and 130) formed between the two seal surfaces and having a volume (e.g. volume of groove), including the seals being made of any material (Col. 3, Lines 50-53).

However, the Balsells '937 reference fails to explicitly disclose the sub-seal means being made of resin.

The Balsells '838 reference, a seal system, discloses making seals of a resin (Col. 1, Lines 19-27).

It would have been obvious to one of ordinary skill in the art at the time of the invention to make the sub-seal of resin in the Balsells '937 reference in view of the teachings of the Balsells '838 reference in order to provide a material that has relatively low friction and is chemically inert and can withstand a variety of temperatures (Balsells '937, Col. 1, Lines 19-27). Note that the modified Balsells reference discloses the structural limitations of claim 1 and the pressure variation reducing means of the Kano reference is **capable of** inhibiting occurrence of a blistering phenomenon in the main seal means.

Regarding claim 2, the Balsells '937 reference, as modified in claim 1, discloses the sub-seal means being disposed such that the concave groove opens toward the higher-pressure side region (Balsells '937, Fig. 4).

Regarding claim 3, the modified Balsells '937 reference discloses the invention substantially as claimed in claim 1.

However, the Fig. 4 of the Balsells '937 reference fails to explicitly disclose the concave groove of seal 130 opening toward a lower-pressure side region.

Fig. 1 of the Balsells '937 reference discloses making the concave groove of a seal, close to a high pressure region, open toward a lower-pressure side region.

It would have been obvious to one of ordinary skill in the art at the time of the invention to reverse seal 130 of Fig. 4 in view of the teachings of Fig. 1 of the Balsells '937 reference in order to limit the pressure acting on main seal 124 and since a reversal of parts would provide predictable results.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GILBERT Y. LEE whose telephone number is (571)272-5894. The examiner can normally be reached on 8:00 - 4:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Will can be reached on 571-272-6998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas B Will/  
Supervisory Patent Examiner  
Art Unit 3671

/G. Y. L./  
Examiner, Art Unit 3676